

```
Acagtttcag aatctccaga atcaccgtat tgtgcagatc gaggccaaac ctaacactct 720
tg\tcttccc aagcacgctg atgctgataa catccttgtt atccagcaag ggcaagccac 780
\mathtt{cgt}\mathfrak{g}acc\mathtt{gta} gcaaat\mathtt{ggca} ataaca\mathtt{gaaaa} \mathtt{gagctttaat} \mathtt{cttgacgagg} \mathtt{gccatgcact} \mathtt{840}
cagaàtccca tccggtttca tttcctacat cttgaaccgc catgacaacc agaacctcag 900
agtag\deltataaa atetecatge eegttaacae acceggeeag titgaggatt tetteeegge 960
gagcaglphaçga gaccaatcat cctacttgca gggcttcagc aggaatacgt tggaggccgc 1020
cttcaatgcg gaattcaatg agatacggag ggtgctgtta gaagagaatg caggaggtga 1080
gcaagagga\dagaggcaga ggcgatggag tactcggagt agtgagaaca atgaaggagt 1140
gatagtcaaa\gtgtcaaagg agcacgttga agaacttact aagcacgcta aatccgtctc 1200.
aaagaaaggc Accgaagaag agggagatat caccaaccca atcaacttga gagaaggcga 1260
gcccgatett t\lambdataacaaet ttgggaagtt atttgaggtg aagccagaca agaagaaeee 1320
ccagcttcag ga&ctggaca tgatgctcac ctgtgtagag atcaaagaag gagctttgat 1380
gctcccacac ttca\actcaa aggccatggt tatcgtcgtc gtcaacaaag gaactggaaa 1440
ccttgaactc gtgg&tgtaa gaaaagagca acaacagagg ggacggcggg aagaagagga 1500
ggacgaagac gaagaaqagg agggaagtaa cagagaggtg cgtaggtaca cagcgaggtt 1560
gaaggaagge gatgtgt\tea teatgeeage ageteateea gtageeatea aegetteete 1620
cgaactccat ctgcttggct tcggtatcaa cgctgaaaac aaccacagaa tcttccttgc 1680
aggtgataag gacaatgtga tagaccagat agagaagcaa gcgaaggatt tagcattccc 1740
tgggtcgggt gaacaagttg\agaagctcat caaaaaccag aaggaatctc actttgtgag 1800
tgctcgtcct caatctcaat 🕏 tcaatctcc gtcgtctcct gagaaagagt ctcctgagaa 1860
agaggatcaa gaggaggaaa akcaaggagg gaagggtcca ctcctttcaa ttttgaaggc 1920
                                                                       1930
ttttaactga
<210> 2
<211> 626
<212> PRT
<213> Peanut
<220>
<221> PEPTIDE
<222> (25)..(34)
<223> peptide 1
<220>
<221> PEPTIDE
<222> (48)..(57)
<223> peptide 2
<220>
<221> PEPTIDE
<222> (65)..(74)
<223> peptide 3
<220>
<221> PEPTIDE
<222> (89)..(98)
<223> peptide 4
```

2

```
¥220>
$21> PEPTIDE
<222> (97)..(106)
<223> peptide 5
<220>
<221> PEPTIDE
<222> (107)..(116)
<223> peptide 6
<220>
<221> PEPTIDE
<222> (123)..(132)
<223> peptide 7
<220>
<221> PEPTIDE
<22$> (134)..(143)
<223> peptide 8
<2203
<221>\ PEPTIDE
<222>\((143)..(152)
<223> peptide 9
<220>
<221> PRPTIDE
<222> (2|94)..(303)
<223> pertide 10
<220>
<221> PEPTIDE
<222> (311)..(320)
<223> peptide 11
<220>
<221> PEPTIDE
<222> (325) . (334)
<223> peptide 12
<220>
<221> PEPTIDE
<222> (344).. (353)
<223> peptide 13
<220>
<221> PEPTIDE
```

```
$\frac{1}{222}$ (393)..(402)
<223> peptide 14
<220>
<221> PEPTIDE
<222> (409)..(418)
<223> peptide 15
<220>
<221> PEPTIDE
<222 (461)..(470)
<223> peptide 16
<220
<221≯ PEPTIDE
<222$ (498)..(507)
<223 peptide 17
<220>
<221> PEPTIDE
<222> (525)..(534)
<223> peptide 18
<220>
<221> PEPTIDE
<222> (539)..(548)
<223> peptide 19
<220>
<221> PEPTIDE
<222> ($51)..(560)
<223> peptide 20
<220>
<221> PEPTIDE
<222> (55$)..(568)
<223> pept/ide 21
<220>
<221> PEPTIDE
<222> (578).\. (587)
<223> peptid 22
<220>
<221> PEPTIDE
<222> (597)..(606)
<223> peptide 2/3
```

See GIL

X400> 2

Met Arg Gly Arg Val Ser Pro Leu Met Leu Leu Leu Gly Ile Leu Val

5 10 15

Leu Ala Ser Val Ser Ala Thr His Ala Lys Ser Ser Pro Tyr Gln Lys20 25 30

Lys Thr Clu Asn Pro Cys Ala Gln Arg Cys Leu Gln Ser Cys Gln Gln
40
45

Glu Pro Asp Asp Leu Lys Gln Lys Ala Cys Glu Ser Arg Cys Thr Lys
50 55 60

Leu Glu Tyr Asp Pro Arg Leu Val Tyr Asp Pro Arg Gly His Thr Gly
65 70 75 80

Thr Thr Asn Gln Arg Ser Pro Pro Gly Glu Arg Thr Arg Gly Arg Gln
85 90 95

Pro Gly Asp Tyr Asp Asp Asp Arg Gln Pro Arg Arg Glu Glu Gly
100 105 110

Gly Arg Trp Gly Pro Ala Gly Pro Arg Glu Arg Glu Arg Glu Glu Asp 115 125

Trp Arg Gln Pro Arg Glu Asp Trp Arg Arg Pro Ser His Gln Gln Pro
130 140

Arg Lys Ile Arg Pro Glu Gly Arg Gla Glu Glu Glu Trp Gly Thr
145 150 155 160

Pro Gly Ser His Val Arg Glu Glu Thr Ser Arg Asn Asn Pro Phe Tyr
165 170 175

Phe Pro Ser Arg Arg Phe Ser Thr Arg Tyr Gly Asn Gln Asn Gly Arg
180 185 190

Ile Arg Val Leu Gln Arg Phe Asp Gln Arg Ser Arg Gln Phe Gln Asn
195 200 205

Leu Gln Asn His Arg Ile Val Gln Ile Glu Ala Lys Pro Asn Thr Leu 210 215 220

Val Leu Pro Lys His Ala Asp Ala Asp Asn Ile Leu Val Tle Gln Gln 225 230 235 240

Gly Gln Ala Thr Val Thr Val Ala Asn Gly Asn Asn Arg Lys Ser Phe 245 250 255 Sub GU

Asn Leu Asp Glu Gly His Ala Leu Arg Ile Pro Ser Gly Phe Ile Ser 260 265 270

Tyr\Ile Leu Asn Arg His Asp Asn Gln Asn Leu Arg Val Ala Lys Ile
275
280
285

Ser Met Pro Val Asn Thr Pro Gly Gln Phe Glu Asp Phe Pro Ala 290 295 300

Ser Ser Ang Asp Gln Ser Ser Tyr Leu Gln Glu Phe Ser Arg Asn Thr 305 310 315 320

Leu Glu Ala Ala Phe Asn Ala Glu Phe Asn Glu Ile Arg Arg Val Leu
325 330 335

Leu Glu Glu Asn Ala Gly Gly Glu Glu Glu Glu Arg Gly Gln Arg Arg
340 345 350

Trp Ser Thr Arg Ser Ser Glu Asn Asn Glu Gly Val Ile Val Lys Val
355 360 365

Ser Lys Glu His Val Glu Leu Thr Lys His Ala Lys Ser Val Ser 370 380

Lys Lys Gly Ser Glu Glu Glu Gly Asp Ile Thr Asn Pro Ile Asn Leu 385 390 395 400

Arg Glu Gly Glu Pro Asp Leu Ser Asn Asn Phe Gly Lys Leu Phe Glu
405 410 415

Val Lys Pro Asp Lys Lys Asn Pro Gln Leu Gln Asp Leu Asp Met Met
420 425 430

Leu Thr Cys Val Glu Ile Lys Glu Gly Ala Leu Met Leu Pro His Phe 435 440 445

Asn Ser Lys Ala Met Val Ile Val Val Val Asn Lys Gly Thr Gly Asn 450 455

Leu Glu Leu Val Ala Val Arg Lys Glu Gln Gln Gln Arg Gly Arg Arg 465 470 475 480

Glu Glu Glu Glu Asp Glu Glu Glu Glu Glu Glu Ser Asn Arg Glu
485 490 495

Val Arg Arg Tyr Thr Ala Arg Leu Lys Glu Gly Asp Val Phe Tle Met 500 505 510

```
aro Ala Ala His Pro Val Ala Ile Asn Ala Ser Ser Glu Leu His Leu
        515
                            520
                                                 525
Leu\Gly Phe Gly Ile Asn Ala Glu Asn Asn His Arg Ile Phe Leu Ala
                        535
                                             540
Gly Asp Lys Asp Asn Val Ile Asp Gln Ile Glu Lys Gln Ala Lys Asp
                    550
Leu Ala Rhe Pro Gly Ser Gly Glu Gln Val Glu Lys Leu Ile Lys Asn
                565
                                     570
Gln Lys Glu\Ser His Phe Val Ser Ala Arg Pro Gln Ser Gln Ser Gln
                                585
Ser Pro Ser Seλ Pro Glu Lys Glu Ser Pro Glu Lys Glu Asp Gln Glu
        595
                            600
Glu Glu Asn Gln Gl\chi Gly Lys Gly Pro Leu Leu Ser Ile Leu Lys Ala
    610
                        615
                                             620
Phe Asn
625
<210> 3
<211> 474
<212> DNA
<213> Peanut
<400> 3
ctcaccatac tagtagecet egecettte etectogetg eccaegeate tgegaggeag 60
cagtgggaac tecaaggaga cagaagatge caga cage tegagaggge gaacetgagg 120
ccctgcgagc aacatctcat gcagaagatc caacgt gacg aggattcata tgaacgggac 180
ccgtacagcc ctagtcagga tccgtacagc cctagtcgat atgatcggag aggcgctgga 240
tcctctcagc accaagagag gtgttgcaat gagctgaa&g agtttgagaa caaccaaagg 300
tgcatgtgcg aggcattgca acagatcatg gagaaccaga\gcgataggtt gcaggggagg 360
caacaggagc aacagttcaa gagggagctc aggaacttgc &tcaacagtg cggccttagg 420
gcaccacage gttgcgactt ggacgtcgaa agtggcggca gagacagata ctaa
<210> 4
<211> 157
<212> PRT
<213> Peanut
```

<220>

```
₹221> PEPTIDE
           √222> (15)..(24)
           <223> peptide 1
           <220>
           <221> PEPTIDE
           <22/2> (21)..(30)
           <223> peptide 2
           <220>
           <241> PEPTIDE
           <222 (27) ... (36)
           <223> peptide 3
           <220>
           <221> PEPTIDE
           <222> (39)..(48)
           <223> peptide 4
           <22þ>
           <221> PEPTIDE
           <222> (49)..(58)
           <223> peptide 5
           <220
           <221X
                 PEPTIDE
           <222> (57)..(66)
346G15
           <223>\peptide 6
           <220>
           <221> PEPTIDE
           <222>
                 (65)..(74)
           <223> peptide 7
           <220>
           <221> PEPTIDE
           <222> (11/5)..(124)
           <223> peptide 8
           <220>
           <221> PEPTI/DE
           <222> (127) \. (136)
           <223> peptide 9
           <220>
           <221> PEPTIDE
           <222> (143)..(\152)
```

<223> peptide 10

```
Sub G/1 >
```

```
K400> 4
Leu Thr Ile Leu Val Ala Leu Ala Leu Phe Leu Leu Ala Ala His Ala
                                     10
Ser Ala Arg Gln Gln Trp Glu Leu Gln Gly Asp Arg Arg Cys Gln Ser
Gln Leu Glu Arg Ala Asn Leu Arg Pro Cys Glu Gln His Leu Met Gln
                             40
Lys Ile Gln Arg Asp Glu Asp Ser Tyr Glu Arg Asp Pro Tyr Ser Pro
                         55
     50
Ser Gln Asp Pro\Tyr Ser Pro Ser Pro Tyr Asp Arg Gly Ala Gly
 65
                     70
                                         75
Ser Ser Gln His Gln Glu Arg Cys Cys Asn Glu Leu Asn Glu Phe Glu
                 85
                                     90
                                                          95
Asn Asn Gln Arg Cys Met Cys Glu Ala Leu Gln Gln Ile Met Glu Asn
            100
                                105
                                                     110
Gln Ser Asp Arg Leu Gln Gly Arg Gln Gln Glu Gln Gln Phe Lys Arg
        115
                                                 125
Glu Leu Arg Asn Leu Pro Gln Gln Cys Gly Leu Arg Ala Pro Gln Arg
    130
                        135
                                            140
Cys Asp Leu Asp Val Glu Ser Gly Gly Arg Asp Arg Tyr
145
                    150
<210> 5
<211> 1524
<212> DNA
<213> Peanut
<400> 5
cggcagcaac cggaggagaa cgcgtgccag ttccagcgcc tcaatgcgca gagacctgac 60
aatcqcattq aatcaqaggq cggttacatt gagacttgga accccaacaa caggagttc 120
quatgegeeg gegtegeet etetegetta gteeteegee geaacgeeet tagtaggeet 180
ttctactcca atgctcccca ggagatcttc atccagcaag gaaggggata ctttgggttg 240
atattccctg gttgtcctag acactatgaa gagcctcaca cacaaggtcg tcgatctcag 300
toccaaagac caccaagacg totocaagga gaagaccaaa gocaacagca acgagabagt 360
caccagaagg tgcaccgttt cgatgagggt gatctcattg cagttcccac cggtgttgat 420
ttotggetet acaacgacca egacactgat gttgttgetg tttetettae tgacaccaa 🔾 480
```

aacaacgaca accagcttga tcagttcccc aggagattca atttggctgg gaacacggag 🦎 0

```
Sub 67/2 1/2
```

```
oldsymbol{arphi}aagagttot taaggtacca gcaacaaagc agacaaagca gacgaagaag cttaccatat 600
aycccataca gcccgcaaag tcagcctaga caagaagagc gtgaatttag ccctcgagga 660
caqcacagcc gcagagaacg agcaggadaa gaagaagaaa acgaaggtgg aaacatcttc 720
agcagettea egeoggagtt cetggaacaa geetteeagg ttgaegacag acagatagtg 780
caaa actaa gaggcgagac cgagagtgaa gaagagggag ccattgtgac agtgagggga 840
ggcct agaa tettgageee agatagaaag agaegtgeeg aegaagaaga ggaataegat 900
gaagatgaat atgaatacga tgaagaggat agaaggcgtg gcaggggaag cagaggcagg 960
gggaatggta ttgaagagac gatctgcacc gcaagtgcta aaaagaacat tggtagaaac 1020
agatecect a acatetacaa eeetcaaget ggtteactea aaactgecaa egateteaac 1080
cttctaatac\ttaggtggct tggacctagt gctgaatatg gaaatctcta caggaatgca 1140
ttgtttgtcg &cactacaa caccaacgca cacagcatca tatatcgatt gaggggacgg 1200
gctcacgtgc aagtcgtgga cagcaacggc aacagagtgt acgacgagga gcttcaagag 1260
ggtcacgtgc ttgbgtgcc acagaacttc gccgtcgctg gaaagtccca gagcgagaac 1320
ttogaataog tggcaktoaa gacagaotoa aggoocagoa tagooaacot ogooggtgaa 1380
aactccgtca tagataacct gccggaggag gtggttgcaa attcatatgg cctccaaagg 1440
gagcaggcaa ggcagctta gaacaacaac cccttcaagt tcttcgttcc accgtctcag 1500
cagtctccga gggctgtggc ttaa
                                                                   1524
<210> 6
<211> 510
<212> PRT
<213> Peanut
<220>
<221> PEPTIDE
<222> (33)..(47)
<223> peptide 1
<220>
<221> PEPTIDE
<222> (240)..(254)
<223> peptide 2
<220>
<221> PEPTIDE
<222> (279)..(293)
<223> peptide 3
<220>
<221> PEPTIDE
<222> (303)..(317)
<223> peptide 4
<400> 6
Ile Ser Phe Arg Gln Gln Pro Glu Glu Asn Ala Cys Gln Phe Gln Arg
  1
                  5
                                      10
```

S45 G1/

Leu Asn Ala Gln Arg Pro Asp Asn Arg Ile Glu Ser Glu Gly Gly Tyr
20 25 30

Ile Glu Thr Trp Asn Pro Asn Asn Gln Glu Phe Glu Cys Ala Gly Val
35 40 45

Ala Leu Ser Arg Leu Val Leu Arg Arg Asn Ala Leu Arg Arg Pro Phe 50 60 .

Tyr Ser Asn Ala Pro Gln Glu Ile Phe Ile Gln Gln Gly Arg Gly Tyr
65 70 75 80

Phe Gly Leu Ile Phe Pro Gly Cys Pro Arg His Tyr Glu Glu Pro His 90 95

Thr Gln Gly Arg Ard Ser Gln Ser Gln Arg Pro Pro Arg Arg Leu Gln
100 105 110

Gly Glu Asp Gln Ser Gln Gln Gln Arg Asp Ser His Gln Lys Val His
115 120 125

Arg Phe Asp Glu Gly Asp Leu Ile Ala Val Pro Thr Gly Val Ala Phe 130 136 140

Trp Leu Tyr Asn Asp His Asp Thr Asp Val Val Ala Val Ser Leu Thr
145 150 155 160

Asp Thr Asn Asn Asn Asp Asn Gln Yeu Asp Gln Phe Pro Arg Arg Phe
165 170 175

Asn Leu Ala Gly Asn Thr Glu Gln Glu Rhe Leu Arg Tyr Gln Gln Gln 180 185

Ser Arg Gln Ser Arg Arg Arg Ser Leu Pro Tyr Ser Pro Tyr Ser Pro 195 200 205

Gln Ser Gln Pro Arg Gln Glu Glu Arg Glu Phe Ser Pro Arg Gly Gln 210 215 220

His Ser Arg Arg Glu Arg Ala Gly Gln Glu Glu Glu Asn Glu Gly Gly 225 230 235 240

Asn Ile Phe Ser Gly Phe Thr Pro Glu Phe Leu Glu Gln Ale Phe Gln 245 250

Val Asp Asp Arg Gln Ile Val Gln Asn Leu Arg Gly Glu Thr Gla Ser 260 265 270 Sub 611

Slu Glu Glu Gly Ala Ile Val Thr Val Arg Gly Gly Leu Arg Ile Leu 275 280 285

Ser Pro Asp Arg Lys Arg Arg Ala Asp Glu Glu Glu Glu Tyr Asp Glu 290 295 300

Asp Glu Tyr Glu Tyr Asp Glu Glu Asp Arg Arg Arg Gly Arg Gly Ser 305 310 315 320

Arg Gly Arg Gly Asn Gly Ile Glu Glu Thr Ile Cys Thr Ala Ser Ala 325 330 335

Lys Lys Asn Ile Gly Arg Asn Arg Ser Pro Asp Ile Tyr Asn Pro Gln 340 345 350

Ala Gly Ser Leu Lys Thr Ala Asn Asp Leu Asn Leu Leu Ile Leu Arg 355 360 365

Trp Leu Gly Leu Ser Ala Glu Tyr Gly Asn Leu Tyr Arg Asn Ala Leu 370 380

Phe Val Ala His Tyr Asn Thr Asn\Ala His Ser Ile Ile Tyr Arg Leu 385 390 400

Arg Gly Arg Ala His Val Gln Val Val Asp Ser Asn Gly Asn Arg Val 405 410 415

Tyr Asp Glu Glu Leu Gln Glu Gly His Val Leu Val Val Pro Gln Asn
420 425 430

Phe Ala Val Ala Gly Lys Ser Gln Ser Glu Asn Phe Glu Tyr Val Ala 435 440 445

Phe Lys Thr Asp Ser Arg Pro Ser Ile Ala Asn Yeu Ala Gly Glu Asn 450 455 460

Ser Val Ile Asp Asn Leu Pro Glu Glu Val Val Ala Asn Ser Tyr Gly
465 470 475 480

Leu Gln Arg Glu Gln Ala Arg Gln Leu Lys Asn Asn Asn Pro Phe Lys
485
490
495

Phe Phe Val Pro Pro Ser Gln Gln Ser Pro Arg Ala Val Ala 500 505 510